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EXAMINER

CHAU, COREY P

ART UNIT PAPER NUMBER

2615

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/867,736

Applicant(s)

YANG ET AL.

Examiner

Corey P. Chau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 10 is objected to because of the following informalities: on line 1, recites “(Previously Presented))”, which should be replaced with ““(Previously Presented)” and on line 4, recites “the matrix mixedd audio signal”, which should be replaced with “the matrix mixed audio signal”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1, recites “matrix mixing an audio signal, then decoding a surround channel of the matrix mixed audio signal”. However, the specification does not clearly disclose how the processing of “decoding a surround channel of the matrix mixed audio signal” will be performed after the matrix mixing the audio signal further comprises applying a downmixing algorithm to the audio signal (i.e. if downmixing does not produce a surround channel) or after the matrix mixing the audio signal further comprises extracting at least four channels from the matrix mixed audio signal.

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Furthermore, the specification does not clearly disclose the purpose and result of “decoding a surround channel of the matrix mixed audio signal”, since the claims does not disclose how and/or why the signal produced from “decoding a surround channel of the matrix mixed audio signal” will be used. Claims 10, 17, and 28-29 are rejected for the same reasons stated above. Claims 2-9, 11-16, and 18-27 are rejected for being dependent on rejected base claims 1, 10, 17, and 28-29.

4. Claim 29 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 29 recites “selecting from the group consisting of”, which is a Markush claim. Markush claims must be provided with support in the disclosure for each member of the Markush group. However, in the instance case the specification does not have support in the disclosure for each member of the Markush group because the specification for example does not disclose the audio post processing method comprising only “a) matrix mixing an audio signal and decoding a surround channel of the matrix mixed audio signal”. The specification discloses for example, Fig. 4 that more steps are performed after “a) matrix mixing an audio signal and decoding a surround channel of the matrix mixed audio signal”. Therefore, the Markush group is nonenabling. Please address and correct the other Markush group that has similar problems.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Regarding Claim 1, it is unclear to the Examiner the need for "decoding a surround channel of the matrix mixed audio signal" because the surround sound is decoded by the matrix mix process, therefore what is the purpose for "decoding a surround channel of the matrix mixed audio signal" ("decoding" may be not be the best term to used to describe the invention). Furthermore, the specification discloses "then the surround portions of the audio signal are parsed to surround speakers", which is not equivalent to "decoding a surround channel of the matrix mixed audio signal". Claims 10, 17, and 28-29 are rejected for the same reasons stated above. Claims 2-9, 11-16, and 18-27 are rejected for being dependent on rejected base claims 1, 10, 17, and 28-29. In addition, it is unclear to the Examiner what step in Fig. 4 is "decoding a surround channel of the matrix mixed audio signal" performed.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 10-12, 15, and 29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

10. With regards to Claims 10-12, 15, and 29 Section 101 of title 35, United States Code, provides:

Whoever invents or discovers any new and **useful process**, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

A claim that requires one or more acts to be performed defines a process.

However, not all processes are statutory under 35 U.S.C. § 101. To be statutory, a claimed process must either: (A) result in a physical transformation for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) **be limited to a practical application which produces a useful, tangible, and concrete result.**

11. Claim 10, discloses “An **audio post processing method** comprising the following ordered **processes**: matrix mixing an audio signal, then decoding a surround channel of the matrix mixed audio signal, then outputting low frequency input channels to a bass compatible speaker, then applying a headphone algorithm to the matrix mixed audio signal” which is not nonstatutory because the claim failed to provide practical application that produces **concrete, tangible and useful result**. One may not patent a process that comprises every “substantial practical application” of an abstract idea, because such a patent “in practical effect would be a patent on the [abstract idea] itself”.

12. Claims 11 and 12 discloses “The audio post processing method according to claim 10, further comprising matrix mixing the signal by applying a downmixing algorithm” and “The audio post processing method according to claim 10, further

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comprising matrix mixing the signal by applying a Prologic algorithm”, which is not nonstatutory because the claim failed to provide practical application that produces **concrete, tangible and useful result**. One may not patent a process that comprises every “substantial practical application” of an abstract idea, because such a patent “in practical effect would be a patent on the [abstract idea] itself”.

13. Claim 15 discloses “The audio post processing method according to claim 10, further comprising transmitting ambient noise to the headphone speaker”, which is not nonstatutory because the claim failed to provide practical application that produces **concrete, tangible and useful result**. One may not patent a process that comprises every “substantial practical application” of an abstract idea, because such a patent “in practical effect would be a patent on the [abstract idea] itself”.

14. The many of the sequences discloses in Claim 29, for example, “a) matrix mixing an audio signal and decoding a surround channel of the signal”; “b) matrix mixing the audio signal, decoding the surround channel, and outputting a low frequency input channel of the matrix mixed audio signal to a low frequency effect compatible speaker”; and “c) matrix mixing the audio signal and outputting the low frequency input channel of the matrix mixed audio signal to the low frequency effect compatible speaker” are not nonstatutory the sequences failed to provide practical application that produces **concrete, tangible and useful result**. Please address and correct other sequences that are similar that does not meet the statutory requirement. Furthermore, other sequences of claims 29, for example, “d) matrix mixing the audio signal, decoding the surround channel, outputting the low frequency input channel of the matrix mixed audio

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signal to the low frequency effect compatible speaker, and transmitting an ambient noise containing channel of the matrix mixed audio signal to a speaker system operable to create a three dimensional effect” may show “practical application”, such as “transmitting an ambient noise containing channel of the matrix mixed audio signal to a speaker system”, but fail to produce **tangible and concrete result** such as “to create a three dimensional effect” because of the alternative “**operable**” language, therefore is nonstatutory. Please address and correct other sequences that are similar that does not meet the statutory requirement. One may not patent a process that comprises every “substantial practical application” of an abstract idea, because such a patent “in practical effect would be a patent on the [abstract idea] itself”.

Response to Arguments

15. Applicant's arguments filed 10/02/2006 have been fully considered but they are not persuasive.

16. With respect to Applicant's argument on page 11, stating that “Regarding the § 112 rejections, a portion of the specification that discloses decoding a surround channel is described on page 5, lines 19-22. The purpose and result of this step is, in combination with the other specific sequences of audio post processing algorithms, to reduce the clipping, choppy and tinny audio distortions that plague prior art audio systems. Applicants consequently urge the Examiner to withdraw the § 112 rejections of claims 1, 10, 17 and 28-29”, has been noted. However, the examiner respectfully disagrees. Claim 1 recites “matrix mixing an audio signal, **then** decoding a surround

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channel of the matrix mixed audio signal", which appears to be to two separate steps, however the specification does not disclose the two separate steps of "matrix mixing an audio signal, **then** decoding a surround channel of the matrix mixed audio signal". The specification discloses, "A multichannel signal is first **matrix mixed by an audio decoder** of an amplifier arrangement" on page 10, lines 8-10; "The system 16 includes **an audio decoder that matrix mixes the input signal**", page 12, lines 4-5; "At block 30, a **decoder of the playback device matrix mixes the multi-channel audio signal**. **Matrix mixing, or matrixing, is the electrical mixing of two or more channels of sound to create one or more new ones. Functionally, the decoder compares the number of channels associated with the input signal to the number of output channels available on the playback system. If a disparity is detected, then the input channel is appropriately processed so that the number of input and output channels are consistent**", on page 13, line 14 to page 14, line 2; "**Prologic permits the extraction of four to six decoded channels from a codified two-channel input signal**. The decoder also senses which parts of the signal are unique to the left and right-hand stereo channels, and feeds these to the respective left and right-hand front channels", on page 16, lines 7-10; and "The Prologic decoder generates the center channel by summing the left and right-hand stereo channels, and combining identical portions of each signal. A single surround channel is obtained from the differential signal between the left and right-hand stereo channels. The surround channel may be further manipulated in a low-pass filter and/or decoder configured to reduce noise", on page 16, lines 12-17, which does not clearly disclose two separate steps of "matrix mixing an

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audio signal, **then** decoding a surround channel of the matrix mixed audio signal". From the disclosure it appears that there is one step or element to matrix mix an audio signal and decode a surround channel, therefore the specification does not disclose the purpose and result of "decoding a surround channel of the matrix mixed audio signal", since the claims does not disclose how and/or why the signal produced from "decoding a surround channel of the matrix mixed audio signal" will be used. The specification does not discloses the need for "decoding a surround channel of the matrix mixed audio signal" because the surround sound is decoded by the matrix mix process, therefore what is the purpose for "decoding a surround channel of the matrix mixed audio signal" ("decoding" may be not be the best term to used to describe the invention).

17. With respect to Applicant's argument on page 12, stating that "Regarding independent claim 29, Applicants assert that the Markush group is proper because there is support for each member of the group. That other sequenced steps could be added to a particular Markush group does not make it non-enabling", has been noted. However, the examiner respectfully disagrees. **Each Markush group must be discloses in the specification in a manner in which each group is fully functional,** however "a) matrix mixing an audio signal and decoding a surround channel of the matrix mixed audio signal" does not fully function only, as shown in the specification Fig. 4 where more steps are performed after "a) matrix mixing an audio signal and decoding a surround channel of the matrix mixed audio signal". Therefore, the Markush group is nonenabling. Please address and correct the other Markush group that has similar problems.

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18. With respect to Applicant's argument on page 12, stating that "Now turning to the 35 U.S.C. § 101 rejections, Applicants respectfully assert that the processes of claim 1 result in a physical transformation of an audio signal and produce that audio signal with superior sound quality. The Examiner will also note that "operable" has been removed from the claim in deference to the Examiner and to further the claims onto allowance. Similarly, the claimed sequences of claims 2, 3, 10, 11, 12, 15 and 29 result in a physical transformation of the audio signal and are limited to a practical application that produces a useful result in the form of reduced clipping, choppy and tinny audio distortions", has been noted. However, the examiner respectfully disagrees. Regarding Claims 10-12, 15, and 29, the claimed invention as a whole must be **useful and accomplish a practical application**. That is, it must produce a useful, concrete and tangible result. In the instant case, **the claim invention as a whole does not provide a transformation or reduction of an article to a different state or thing and the claim invention, as a whole does not produce a useful, concrete, and tangible result**. The applicant is in the best position to explain why an invention is believed useful. Accordingly, a complete disclosure should contain some indication of the practical application for claimed invention i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 5291557 to Davis et al. discloses an adaptive rematrixing matrixed audio signals.

USPN 5757927 to Gerzon et al. discloses a surround sound apparatus.

USPN 3943287 to Gravereaux et al. discloses an apparatus and method for decoding four channel sound.

USPN 5594800 to Gerzon discloses a sound reproducing system having a matrix converter.

USPN 5278909 to Edgar discloses a system and method for stereo digital audio compression with co-channel steering.

USPN 6694027 to Schneider discloses a discrete multi-channel/5-2-5 matrix system.

USPN 4149031 to Cooper discloses a multichannel matrix logic and encoding systems.

USPN 6470087 to Heo et al. discloses a device for reproducing multi-channel audio by using two speakers and method therefor.

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 10, 2006
CPC


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12/11/06